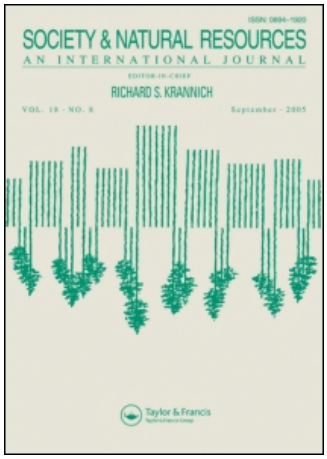

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Tasos Hovardas [a]; George P. Stamou [a]
[a] Department of Ecology, School of Biology, Aristotle University, Thessaloniki, Greece

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Structural and Narrative Reconstruction of Representations of "Environment," "Nature," and "Ecotourism"

TASOS HOVARDAS AND GEORGE P. STAMOU

Department of Ecology, School of Biology, Aristotle University, Thessaloniki, Greece

This study aims at the structural and narrative reconstruction of representations of "environment," "nature," and "ecotourism" held by growth coalition members involved in ecotourism management and visitors to the Dadia Forest Reserve. We employed a word association task method and used a classification system to content analyze associations. The structural reconstruction revealed that the degree of homogeneity of association category profiles between respondent groups proved to be quite high for each stimulus term. Sample demographics did not influence associations elicited significantly. The loose interrelation of the tourism image of "ecotourism" with the environmentalist one, shown by the narrative reconstruction, should be attributed to the incompatibility between biophobic depictions of the term "environment" and biophilic depictions of the term "nature." To face this dualism, it is suggested that ecotourism managers focus environmental messages promoted through ecotourism on the interplay between society and nature.

Keywords Dadia Forest Reserve, ecotourism management, environment, Greece, nature, representation, visitors

The terms "environment" and "nature" refer to the prefix "eco-" of the term "ecotourism." Little research has attempted to understand the ideology of ecotourism (Ryan et al. 2000). However, over the years, the prefix "eco-" is said to have experienced severe semantic bleaching (Mühlhäusler and Peace 2001). Ecotourism is accused of functioning as a market mechanism, through which both ecotourism providers and consumers attenuate their guilt with respect to the environment (Weinberg et al. 2002). Indeed, analysis of visitors' books of the Dadia Forest Reserve revealed that the tourism aspect overrode the environmentalist one (Stamou and Paraskevopoulos 2003). Further, Stamou and Paraskevopoulos (2003) reported that the two images were not interrelated, since visitors' recordings were confined either to the tourism or to the environmentalist aspect.

The dominance of the tourism image is implied by a series of previous studies. According to the Greek National Tourism Organization and WWF-Greece (2000), the visitors of the Dadia Forest Reserve do not significantly differ from tourists traveling to mass tourism destinations, as far as their motives are concerned. Previous research showed that visitors to protected areas are not usually involved in

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Address correspondence to Hovardas Tasos, Department of Ecology, School of Biology, Aristotle University, UPB 119, 541 24, Thessaloniki, Greece. E-mail: ahovarda@bio.auth.gr

environmental conservation issues (Vokou et al. 2000; Papageorgiou 2001). Moreover, most of the ecotourists who visit the Mediterranean islands do so on an occasional basis in that they are engaged in other forms of tourism in addition to ecotourism (Diamantis 2000).

The need to integrate public and stakeholder input in environmental decision-making was identified by numerous authors (Hunter and Rinner 2004; Mascarenhas and Scarce 2004). Since there can be considerable discrepancies between managers' beliefs and values held by the public (Miller and McGee 2001), investigating visitors' perceptions is considered crucial for rendering management effective (Buerger et al. 2003). The present study focused on two different groups of respondents, namely, growth coalition members (GC members) and visitors to the Dadia Forest Reserve. The former group was termed after Logan and Molotch's (1987) "growth coalition" and includes groups of assistants to managers, executives, or other persons in authority, as well as personnel who carry out specific enterprises within administration bodies involved in ecotourism management.

Within this frame, the objective of our research is to determine how perceptions of "environment" and "nature" shape the prefix "eco-" of the term "ecotourism." We also aim at investigating whether both the tourism and the environmentalist image are revealed in the representation of "ecotourism." We further hypothesized that the interrelation between the tourism and the environmentalist image could be mediated by (a) elements intrinsic to the structural or narrative modes of stimulus terms, (b) representational differences between park visitors and GC members, and (c) differences in sample demographics.

The Dadia Forest Reserve

The Dadia Forest Reserve extends in the middle part of Evros Prefecture and is a popular ecotourism destination in Greece (Figure 1). The reserve was designated in 1980 and is composed of two core areas with a total surface of 7250 ha and a buffer zone covering 28,000 ha (Adamakopoulos et al. 1995). The main attraction of the reserve is its rich raptor fauna, especially vulture species. After designation, ecotourism has been the major developmental strategy, aiming at compensating the loss in the income of local residents, which followed the establishment of the new management regime. Ecotourism facilities including a vulture observation post were first constructed in 1988 and have been gradually extended, so that the reserve hosted recently more than 45,000 visitors.

Data Collection

Every participant completed a questionnaire, which was introduced by an invitation letter as a survey on attitudes toward ecotourism. Respondents were asked to list the first five words that came to their mind when thinking of three stimulus terms, namely, "environment," "nature," and "ecotourism." Stimulus terms were placed on an instrument with five blanks attached and appeared in random order. After the word association tasks, respondents completed a demographic section ascertaining gender, age, level of education, and income. On average, respondents needed approximately 4 minutes to complete both sections. Participation was voluntary and participants were anonymous.

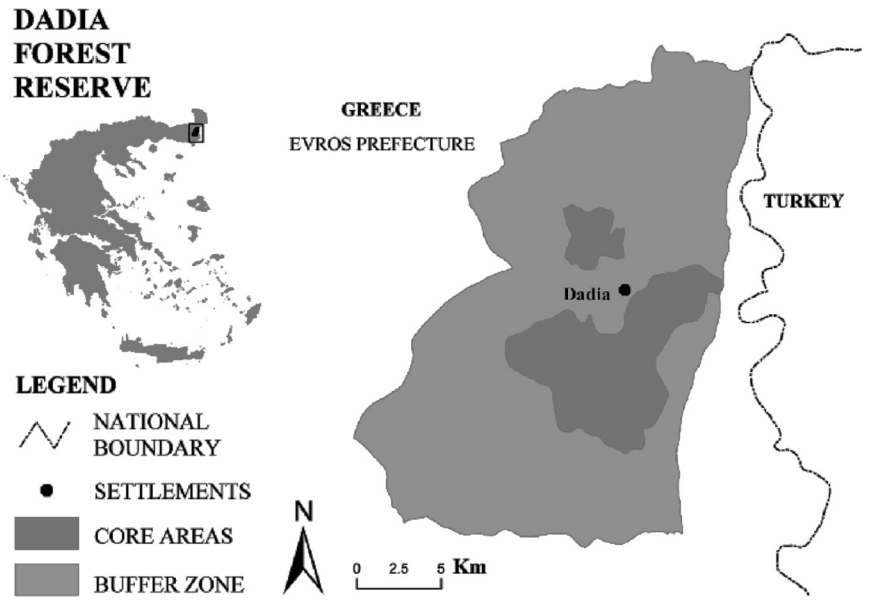

Figure 1. The Dadia Forest Reserve.

In the case of GC members, questionnaires were mailed to six different body categories, situated all over Greece: companies supporting rural development at the level of prefectures, forest administrative bodies, environmental education centers, Greek Tourism Organization offices, local government administrative bodies, and travel agencies specialized in ecotourism. In total, 360 questionnaires were mailed and 225 questionnaires were returned during the first semester of 2001, resulting in a response rate of 62.5%. In the case of park visitors, the questionnaires were administered at the Ecotourist Center of the Dadia Forest Reserve. Every fourth visitor who returned from the vulture observation post was approached personally. The objective of the study was explained and then visitors were asked whether they would like to participate in the survey. Almost 85% of visitors approached agreed to participate in the study, which resulted in 151 returned questionnaires. Questionnaires were collected during May 2001, when visitor numbers reach their maximum (Hovardas 1999).

Data Analyses

Content Analysis of Word Associations

Word association procedures are commonly used in social representations research (Doise et al. 1993; Penz et al. 2004). Associations elicited in this manner are considered spontaneous productions, subject to fewer constraints, which the respondent typically confronts in closed questionnaires (Sotirakopoulou and Breakwell 1992; Wagner et al. 1996). We presume that respondents' concepts are arranged so that words more closely associated are closer together within their cognitive schemas (Fiske and Taylor 1991; Smith 1998). Requiring multiple responses taps several of

the closely related concepts and captures the richness of a subject's association network (Schmitt 1998).

Associations were condensed by combining words at level 1 of the Bauer and Nation (1993) morphological hierarchy. Association types revealed included any base word and its inflections (e.g., "visit" and "visits"), while derivations (e.g., "visit" and "visitor") were classified as different association types. At a second stage, content analysis of word associations was conducted on the basis of the classification system presented in Table 1. The system involved three levels of grouping and was adopted from Koskinas et al. (2000), who studied the social representation of the term "environment" held by residents in the corporate town of Athens. Content analysis revealed association categories. For instance, under the "physical dimension," "natural elements," and "organisms," the category "flora" was comprised by the following associations: "vegetation," "forest," "trees," "flowers," "green," "plant," and "flora" (Table 1). Intercoder reliability between the two authors amounted to almost 90%. Further data analysis involved categories with frequencies higher than 7% for each respondent group. Over this threshold, a minimum of 90% for each respondent group was included in the analysis, as well as a minimum of 60% of the total of associations for each stimulus term.

Table 1. Classification system

First grouping	Second grouping	Third grouping	Categories
Dimension			
Physical	Natural elements	Organisms	Flora, fauna
		Systems	
		Descriptive terms	Stimulus terms, scientific terms
		Medium	Air, water, and terrestrial systems
	Human-induced elements		Infrastructure
Social	Humans	Biophilic depictions	Feelings, countryside
		Neutral depictions	Humans, development
	Environment/ nature	Biophilic depictions	Stimulus
	Relationship	Biophilic depictions	Awareness, sustainability, recreation, ecotourism activities, cleanness, ecology, protection, pro-environmental behavior
		Biophobic depictions	Destruction, degradation

Note. The category "life" crosses over the entire classification system and was therefore not ordered to a specific cell.

Structural Reconstruction

The structural reconstruction aimed at revealing the patterns of distribution of association categories across respondent groups and stimulus terms. The influence of respondent group adherence and sample demographics on categories' frequency was identified by means of the chi-square test of independence. To evaluate the word reservoir for each stimulus term according to category richness and abundance, we calculated the indices of diversity (Shannon and Weaver 1949) and evenness (Pielou 1975). Finally, to assess the degree of homogeneity of category profiles between respondent groups for each stimulus term, we calculated the corresponding Spearman's rank correlation coefficients.

Narrative Reconstruction

After defining compartments that shape respondents' cognitive schemata through the structural reconstruction (i.e., association categories), we proceeded to the narrative reconstruction; at this stage of analysis, we investigated interrelations between compartments. The objective of the narrative reconstruction was to uncover patterns of concurrence of association categories across respondent groups and stimulus terms. Categories were subjected to hierarchical cluster analysis to determine recordings that tend to be given at the same time. We used information that already existed in respondents' recordings and treated qualitative data quantitatively. More specifically, qualitative data comprised of categories' presence or absence were transformed into quantitative data revealing distances between categories by means of a 2×2 contingency table produced for each possible pair of categories. Each cell of the table corresponds to a combination of presence and absence for each possible pair of categories: cell a refers to matches (joint presence), cells b and c refer to recordings of the first or the second category of the pair, respectively, and cell d refers to mismatches (joint absence).

We used the Czekanowski measure to compute distances, which is computed from the 2×2 contingency table as $2a/(2a+b+c)$ (SPSS, Inc. 1992). In this measure, double weight is given to matches. Categories were then aggregated into dendrograms, where actual distances were rescaled to numbers between 0 and 25. The lesser the rescaled distance that corresponds to the linkage point between two categories, the higher is the degree of affinity. To make use of the entire word reservoir of each stimulus word, dendrograms were constructed by the average linkage between groups method.

Results

Sample Description

Sample demographics are presented in Table 2. Women are overrepresented in the visitor group compared to the GC members group (47.26 and 64.84%, respectively). Significant differences were revealed between the two respondent groups in the case of age and education level as well. Concerning age, 65.62% of GC members were aged between 31 and 50 years, while visitors were more evenly distributed among age classes. GC members were more educated than visitors, with 63.89% having completed college. No significant differences were found between GC members

Table 2. Sample characteristics

	Percent of GC members	Percent of park visitors	Percent of the total sample
Gender*			
Male	52.74	35.16	45.68
Female	47.26	64.84	54.32
Age group**			
<30 years	23.45	31.87	26.83
31–50 years	65.52	40.66	55.54
>50 years	11.03	27.47	17.63
Education level**			
High school/trade school	11.11	33.33	20.03
College degree	63.89	53.33	59.65
Postgraduate studies	25.00	13.33	20.31
Income^{NS}			
<900 Euros	39.71	36.36	38.36
900–1200 Euros	38.24	28.57	34.36
>1200 Euros	22.06	35.06	27.28

Note. Significance levels for the chi-square test of independence: NS, nonsignificant; $^{*}p < .01$; $^{**}p < .001$.

and visitors in the case of income. Since there are no available demographic data for GC members, one cannot evaluate the representativeness of the sample. Compared to available visitor data (Hovardas 1999), our sample demonstrated higher percentages in the case of women.

Structural Reconstruction

The structural reconstructions of the physical and social dimensions of stimulus terms for both respondent groups are presented in Tables 3 and 4, respectively. While most categories of the physical dimension of "environment" and "nature" were common for both respondent groups (Table 3), GC members and park visitors shared no common category in the social dimension of "environment" and "nature" (Table 4). Further, even numbers of biophobic ("destruction," "degradation") and biophilic depictions ("cleanness," "ecology") determined the representation of the social dimension of "environment" for both respondent groups; however, no biophobic depiction was revealed in the case of "nature" (Table 4). We can conclude that differences in the structural reconstruction of representations of "environment" and "nature" pertain to the social dimension.

Two-thirds of the categories associated with "ecotourism" had already been given by respondents for the two former stimulus terms (Tables 3 and 4). Within the social dimension, categories elicited by both groups imply both the recreational ("recreation," "ecotourism activities") and the developmental component ("countryside," "development") of the tourism image, as well as both the environmental conservation ("protection," "ecology") and the environmental education ("awareness") component of the environmentalist image of "ecotourism" (Table 4). Thus, both components for each image of "ecotourism" were revealed for both respondent groups.

Table 3. Structural reconstruction of the physical dimension of representations of "environment," "nature," and "ecotourism"

	Stimulus term "environment"		Stimulus term "nature"		Stimulus term "ecotourism"	
Categories	GC members	Park visitors	GC members	Park visitors	GC members	Park visitors
Flora	0.44 (1)	0.49 (1)	0.72 (1)	0.81 (1)	0.10 (9)	0.28 (3)***
Nature	0.37 (3)	0.37 (2)	—	—	0.43 (1)*	0.30 (2)
Water systems	0.29 (4)	0.29 (4)	0.49 (2)	0.41 (3)	0.08 (13)	0.10 (12)
Fauna	0.28 (5)	0.29 (3)	0.36 (4)	0.49 (2)*	0.08 (14)	0.09 (14)
Air systems	0.22 (7)	0.26 (5)	0.19 (7)	0.29 (4)*	—	—
Terrestrial systems	0.13 (9)	0.09 (13)	0.37 (3)**	0.16 (7)	0.10 (10)	—
Scientific terms	0.10 (12)	0.09 (12)	0.11 (11)	—	—	0.09 (15)
Life	0.10 (13)	0.13 (9)	0.13 (9)	0.12 (8)	—	—
Environment	—	—	0.14 (8)	0.09 (9)	0.23 (6)	0.17 (4)
Infrastructure	—	—	—	—	0.09 (12)	—

Note. Significance levels for the chi-square test of independence between GC members and park visitors are given next to relatively higher frequencies: $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$. The rank of each category according to its frequency is given in parentheses.

Table 4. Structural reconstruction of the social dimension of representations of "environment," "nature," and "ecotourism"

	Stimulus term "environment"		Stimulus term "nature"		Stimulus term "ecotourism"	
Categories	GC members	Park visitors	GC members	Park visitors	GC members	Park visitors
Degradation	0.40 (2)**	0.25 (6)	—	—	—	—
Protection	0.27 (6)	0.21 (7)	0.13 (10)	—	0.10 (8)	0.11 (9)
Humans	0.17 (8)*	0.09 (15)	0.08 (12)	—	—	—
Destruction	0.13 (10)	0.09 (16)	—	—	—	—
Sustainability	0.11 (11)	—	—	—	—	—
Ecology	0.09 (14)	0.09 (14)	—	—	0.09 (11)	0.11 (10)
Cleanness	0.07 (15)	0.16 (8)*	—	—	—	—
Pro-environment behavior	—	0.11 (10)	—	—	—	0.09 (13)
Feelings	—	0.11 (11)	0.27 (5)	0.26 (5)	—	0.13 (8)
Stimulus	—	—	0.20 (6)	0.21 (6)	—	—
Recreation	—	—	0.07 (13)	—	0.33 (4)	0.40 (1)
Ecotourism activities	—	—	—	—	0.35 (2)***	0.10 (11)
Countryside	—	—	—	—	0.34 (3)***	0.17 (5)
Development	—	—	—	—	0.32 (5)***	0.14 (7)
Awareness	—	—	—	—	0.18 (7)	0.15 (6)

Note. Significance levels for the chi-square test of independence between GC members and park visitors are given next to relatively higher frequencies: $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$. The rank of each category according to its frequency is given in parentheses.

Significant differences between respondent groups were confined to the social dimension of "environment" ("degradation," "humans," and "cleanness") and to the physical dimension of "nature" ("fauna," "air systems," "terrestrial systems") (Tables 3 and 4). GC members stressed the tourism image of "ecotourism" more than park visitors ("ecotourism activities," "countryside," "development"); on the other hand, there were no significant differences in the environmentalist image (Table 4). Sample demographics did not significantly influence categories' frequency in the case of "environment" and "nature." Concerning "ecotourism," significant mediations were confined to increased frequencies of "ecotourism activities" and "countryside" for higher educational level (phi = 0.17, $p < .05$ for both cases). We can conclude that group adherence influenced the structural reconstruction of stimulus terms more than sample demographics.

The diversity of the category profile was quite high for "environment" and "ecotourism." The Shannon index for "environment" equaled 2.55 and 2.61 for GC members and visitors, respectively. In the case of "ecotourism," the Shannon index amounted to 2.45 and 2.58 for GC members and visitors, respectively. The diversity of the word reservoir was relatively lower for "nature": Shannon indices equaled 2.33 and 1.99 for GC members and visitors, respectively. However, the evenness of the word reservoir was quite high across respondent groups and stimulus terms, since all evenness indices ranged over 0.90 ($J = 0.94$, 0.91, and 0.93 for "environment," "nature," and "ecotourism," respectively, in the case of GC members, and $J = 0.94$, 0.91, and 0.95 for "environment," "nature," and "ecotourism," respectively, in the case of visitors). Finally, the Spearman's rank correlation coefficients between respondent groups proved to be significant for all stimulus term category profiles. The coefficient amounted to .81 for "environment" ($p < .001$), .89 for "nature" ($p < .001$), and .76 for "ecotourism" ($p < .001$). Based on the high diversity and evenness indices, as well as on the high homogeneity of the association category profile between respondent groups, we can infer that representational differences between GC members and park visitors were rather limited.

Narrative Reconstruction

The narrative reconstruction of stimulus terms for respondent groups is presented in Figures 2 to 4. The first separation in the trees opposes the physical to the social dimension. For "environment" and "nature," the degree of affinity is higher in the physical dimension (Figures 2 and 3). Concerning "ecotourism," the degree of affinity is higher in the social dimension for GC members (Figure 4A); in the case of visitors, there is no well-defined cluster of either the physical or the social dimension (Figure 4B).

Regarding "environment," biophobic categories for GC members are grouped with biophilic ones (Figure 2A). "Degradation" and "protection" show a quite high degree of affinity. In the case of visitors, the biophobic categories "degradation" and "destruction" build a distinct pair (Figure 2B). For both groups, the category "nature" is included in the physical dimension complex. On the other hand, the category "environment" can be found in the social dimension complex in the dendrograms for the stimulus term "nature" for both groups (Figure 3A and B). In those dendrograms, "feelings," "stimulus," and "life" form a clearly separate grouping, which refers to experiences in the "green."

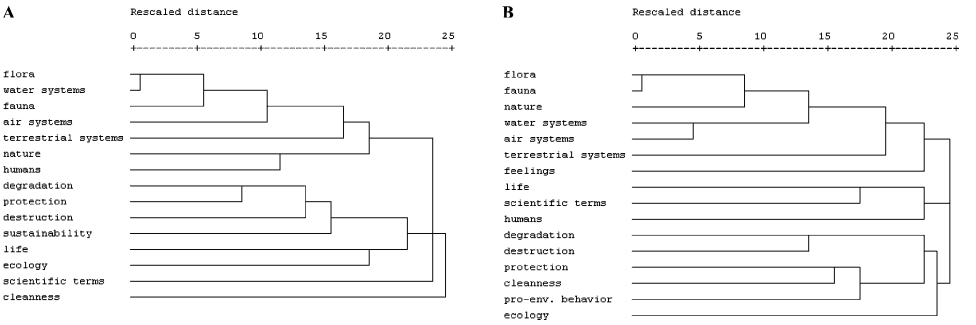

Figure 2. Narrative reconstruction of the representation of the stimulus term "environment" in the case of (A) GC members and (B) park visitors.

Concerning "ecotourism," "nature" is for both groups closely associated with "recreation," while "environment" is grouped with "ecology" (Figure 4A and B). In the case of GC members, we encounter the pairs "nature"/"recreation" and "development"/"countryside" within the social dimension complex. Those pairs demonstrate the highest degree of affinity and pertain to the tourist image of "ecotourism." "Awareness" and "protection," which refer to the environmentalist image of "ecotourism," are also included in the social dimension complex but do not form any pairs with other categories.

In the case of visitors, the largest complex contains categories that pertain to both the physical and the social dimension of the classification system (Figure 4B). "Pro-environmental behavior" is distinguished from the other categories of the largest complex at a relatively higher distance. In another complex, "awareness" is closely associated with "protection." However, one should notice that these categories, which refer to an environmentalist image of "ecotourism," are not grouped with categories that pertain to a tourist image of "ecotourism" (e.g., "recreation," "ecotourism activities").

To conclude, the narrative reconstruction of "environment" and "nature" involves a core consisting of categories that refer to the physical dimension of the classification system. Differences between respondent groups are confined to the distribution of biophobic terms. In the case of "nature," a "green" experience category complex is revealed. The narrative reconstruction of "ecotourism" showed that "environment" is perceived as a place of ecological interventions, while "nature"

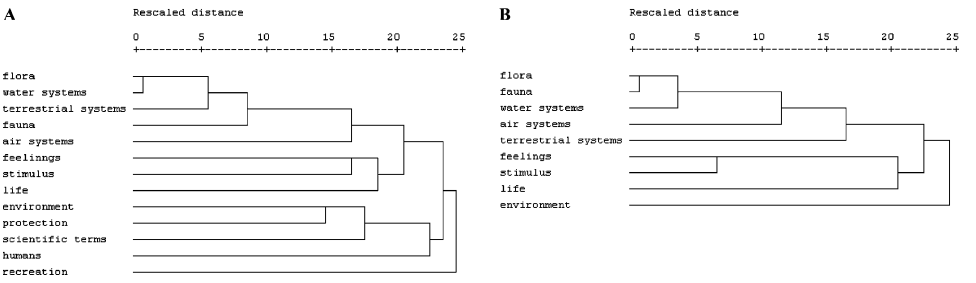

Figure 3. Narrative reconstruction of the representation of the stimulus term "nature" in the case of (A) GC members and (B) park visitors.

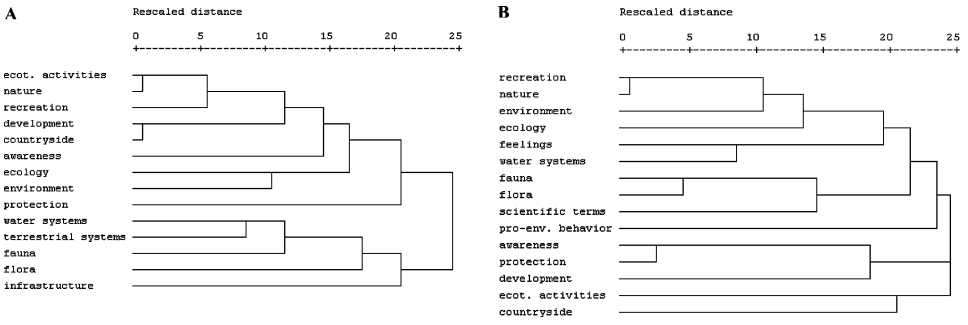

Figure 4. Narrative reconstruction of the representation of the stimulus term "ecotourism" in the case of (A) GC members and (B) park visitors.

is perceived as a place for recreation. Finally, one can infer that the tourism image is only loosely interrelated with the environmentalist image of "ecotourism." This is more pronounced in the case of visitors.

Discussion

Our findings support the assertion that natural capital is perceived as vulnerable to degradation through pollution and the production of waste (Douguet and O'Connor 2003). This is highlighted by biophobic categories associated with "environment." On the other hand, the representation of "nature" contained only biophilic categories. Indeed, natural environments are usually equated with environments that have no evidence of human intrusion; furthermore, biophobic depictions, such as pollution, are said to diminish naturalness (Mausner 1996). One can conclude that, for both respondent groups, the representations of the terms "environment" and "nature" are incompatible, insofar as the first involves biophobic environmental depictions and the second shapes an exclusively biophilic image of nature.

The structural reconstruction of "ecotourism" revealed for both respondent groups the entire array of distinctive features that are said to characterize ecotourism. Our results thereby challenge claims that ecotourists do not significantly differ from tourists traveling to mass tourism destinations, at least at the level of representing the stimulus term "ecotourism" (Greek National Tourism Organization and WWF-Greece 2000). In line with Stamou and Paraskevopoulos (2003), the tourism image of "ecotourism" was found to override the environmentalist one; moreover, the tourism image was only loosely interrelated with categories referring to environmentalism. This interrelation could not be attributed to representational differences between respondent groups, nor to the social profile of the sample; instead, it should be explained by intrinsic characteristics of the representation of stimulus terms, that is, the incompatibility between biophobic depictions of "environment" and biophilic depictions of "nature." Indeed, the narrative reconstruction of "ecotourism" revealed that "environment" was perceived as a place of ecological interventions, while "nature" was perceived as a place of recreation.

Administration bodies involved in ecotourism management should deal with two contradictory discourses integrated in the representation of the term "ecotourism." The first is related to biophobic perceptions of the term "environment," which cluster around notions such as "pollution" and "degradation." The second discourse

corresponds to the biophilic version of a "pristine nature." Both discourses could support the motto "leave nature untouched," which involves the goal of disturbing natural processes as little as possible (Keulartz et al. 2004). This stance is said to correspond to a relatively recent attitude of urban societies toward nature (Konijnendijk 2000).

Indeed, the value of natural preserves is predicated on the separation of humans from the environment (Hamin 2001): Nature becomes an exhibit to be visually consumed (Duncan and Duncan 2001). Ecotourism is thereby represented as a return to an Arcadian nature (Bandy 1996), which is seen as a source of relaxation: The encounter with "pristine nature" is perceived as the antithesis of the mundane character of everyday life (Keulartz et al. 2004). This is highlighted by the "green" experience category complex revealed in the narrative reconstruction of the representation of "nature."

The motto "leave nature untouched," as well as the version of a "pristine nature," could perpetuate the dualism between the tourism and the environmentalist aspect of ecotourism, which could further provide reasoning on why efforts to promote environmental education through ecotourism are deemed inadequate (Ryan et al. 2000; Mühlhäusler and Peace 2001). To face this dualism, messages promoted through ecotourism should focus on the interplay between society and nature—for instance, on conservation aims, on monitoring, and on the coexistence and interdependence of local communities and the natural environment. Therefore, visitor information and environmental education programs provided in ecotourism destinations should not be confined to mere descriptions of biodiversity and conservation measures applied within protected areas; instead, they should address the fact that human interventions are integral to any kind of environmental conservation initiative (Hovardas 1999), in order to strengthen the interrelation of the tourism and the environmentalist image of ecotourism.

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